



ECTNA

End User Manual and Guide for the IT services of the Testing Centres / Certification Sessions

Version 2007/14

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What is EChemTest?

EChemTest is an Internet-based platform of tests in chemistry, developed by the ECTN Association (www.ectn-assoc.org) and aims at evaluating knowledge and skills acquisition in Chemistry. It provides a means for:

- **Professional workers:** for progressing at work, and/or self-evaluating to the end of increasing motivations, starting a formal course or taking examinations;
- **Students:** for evaluating their chemistry knowledge and/or improving the understanding of chemistry in a foreign language with the aim of taking a period of study in another country, comparing their own competences with the European standard level;
- **Citizens:** for pursuing life-long learning.

The goal of **EChemTest** is to make available in several languages computer-based tests designed to evaluate competence in different areas related to chemistry and selected to meet the common content of first degree courses in chemistry (Core Chemistry) at a European Level. Moreover, tests have also been designed to evaluate competence at four levels corresponding to what one should have learned and achieved at:

- The end of compulsory education (General Chemistry 1)
- The beginning of University studies (General Chemistry 2)
- The end of the Core Chemistry Syllabus at the University Level as defined in the Chemistry Bachelor (Analytical Chemistry 3; Biological Chemistry 3; Inorganic Chemistry 3; Organic Chemistry 3; Physical Chemistry 3)
- The end of some specialist courses or training periods (Organic Chemistry 4; Theoretical Chemistry and Computational Modelling ; ...)

Test:

An **EChemTest** test is a one hour test composed of up to 30 questions of different types and different levels of difficulty.

Demonstration Test:

The **EChemTest** demonstrator, also called the Training Test, presents a sample of each test most of which are translated into 21 European languages. It allows a check of the various types of questions. It is **strongly recommended** to go through the Training Test before taking any of the official or certification tests, especially if one is not familiar with automated tests.

Certification Test:

The **EChemTest** certification test in chemistry is a one hour test composed of up to 30 questions of different types, taken at random from a large bank, covering the European Core Chemistry Program at four different levels of knowledge and skills acquisition in Chemistry. Each time a candidate runs a real or certification test, the set of questions is different and the list of options in each question is shuffled.

European Chemistry Certificate: «some uses of the Certificate»

After passing the **EChemTest** examination in a Test Centre, under controlled conditions, one is eligible for the «European Chemistry Certificate», issued by the ECTN Association and reporting the score achieved in a specific domain.

The EChemTest website

The entry page: www.echemtest.net

The screenshot shows the EChemTest website interface. At the top, a header bar reads "European Chemistry Thematic Network Association - The European Chemistry Test Official Website". Below this is a large "Welcome to EChemTest" title. A navigation bar contains buttons for "Access online", "Available Demo", "Compatibility", "Committee", and "Testing Centres". A blue banner displays visitor statistics: "EChemTest visitors are from: Europe 45%, South-America 47%, Rest of the world 7% July 2006". Below the banner, a message states: "If you are not yet registered, [ask for your personal account now](#)".

On the left side, there is a sidebar with a logo and text: "Funded by the European Commission and developed by the ECTN Association ... [BACKGROUND](#) ...". Below this is a "> HOME <" link and an "Information panel" with language selection buttons: "Dansk", "Deutsch", "English", "Español", "Français", "Italiano", "Português", and "Suomi". At the bottom of the sidebar, it says "Copyright 2006 ECTN Association" and "wginfopage".

The main content area features a "News ..." section with a list of updates, each preceded by a small blue square icon. The news items include dates and descriptions of new curriculum content, demo releases, surveys, and conference participation. At the bottom of the news section, it says "Past News ... click >>> [here](#) <<<".

Below the news section, a "Thank you for your visit" message is displayed, followed by "updated: 09-09-2006" and the "XiTi" logo. The browser's status bar at the bottom shows "Internet" and "100%" zoom.

News ...

- 09.09.06: [Biological Chemistry 3 Core Curriculum Content](#) now released (in English only).
- 17.07.06: Analytical Chemistry 3 demo in Polish now released for registered members.
- 15.07.06: [First survey](#) of the free open access demo online.
- 08.05.06: Visit our partner ESP-C, providing English course for Chemists, at <http://moodle.esp-c.org>
- 18-22.04.06: EChemTest at the Annual Conference of ECTN 2006, Vienna AT, (ectn2006.tuwien.ac.at), Official launch of the Test Centres
- 26.03.06: [Free Open Access Online](#) to the 6 demo tests in English, click and try ... !!!
- 18.03.06: The Working Groups in Biological Chemistry 3 and Synthetic Organic Chemistry 4 met in Cologne DE on March 10, a first demo will be presented at the Annual Conference of ECTN in Vienna AT next April 2006.
- Past News ... click >>> [here](#) <<<


General Information

The [BACKGROUND](#) link will provide information on:

- The **EChemTest** origin
- The Core Chemistry Curriculum website link
- The **QuestionMark** Computer platform website link

Information panel: selecting the language of your choice, you can get information on:

- Thematic areas of chemistry covered by the tests (i.e. General Chemistry, Analytical Chemistry etc.) and the level available for these tests.
- The certification process for the “ECTN - European Chemistry Certificate”
- Training options to become familiar with the tests.



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European Commission
and developed by the
ECTN Association
... [BACKGROUND](#) ...

> [HOME](#) <

Information panel

Dansk

Deutsch

English

Español

Français

Italiano

Português

Suomi

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Testing centres

Testing centres physically available across Europe are listed in the Testing Centre area that can be accessed from the **Testing centres** tab

European Chemistry Thematic Network Association - The European Chemistry Test Official Website

Testing Centres

Access online Available Demo Compatibility Committee Testing Centres

updated: 09-06-2006 21:46

Contact the testing centers (Emails are not yet activated)

	Testing Centres	ECTN Representative Educational Supervisor	Administrator Educational Assistant
AT	Technical University of Vienna TC.Vienna @ echemtest.net	Prof. J. Fröhlich	Dr. C. Hametner Dr. H. Krebs
ES	University Complutense of Madrid TC.Madrid @ echemtest.net	Prof. J.-A. Rodriguez-Renuncio	Dr. I. Gil Iza
FI	University of Helsinki TC.Helsinki @ echemtest.net	Prof. K. Wähälä, Prof. T. Hase	Dr. J. Koskimies
FR	CPE Lyon TC.Lyon @ echemtest.net	Prof. A. Smith	Dr. P. Mimero
GR	University of Athens TC.Athens @ echemtest.net	Prof. M. Karayannis Prof. C. Efstathiou	Dr. S. Bolis
	University of Geneva		Dr. M. Espinosa-Lopez

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vgninfo@page

Internet 100%

Training Tests

The «**Training Test**» allows you to check the various types of question and the way to answer them. It is strongly recommended before taking any of the **EChemTest** chemical tests available, if you are not familiar with automated tests.

The table showing the available Demo on line is accessible from the website by clicking either the top button “Training Tests” in the general banner, or via the “Background” link or the information section presented in the previous item, and looks like this:

European Chemistry Thematic Network Association - The European Chemistry Test Official Website

Available Demo

Access online Available Demo Compatibility Committee Testing Centres

!! NEW: FREE OPEN ACCESS TO THE ENGLISH VERSION ONLINE !!

Last update: 17-07-2006 22:20

	General Chemistry 1	General Chemistry 2	Analytical Chemistry 3	Inorganic Chemistry 3	Organic Chemistry 3	Physical Chemistry 3
>English>						
Български						
Čeština						...
Dansk						...
Deutsch			
Ελληνικά						...
Español
Français		
Italiano						
Lietuvi						
Magyar					...	
Nederlands						...
Norsk
Polski						...

Access the free demo, clicking the “Demo online” button for the test you are interested in and follow the instructions to begin the training.

If the button is not available for the test you are interested in, but is marked with the symbol or you are interested on a full account, then address your queries by contacting us to get a personal account by clicking the link [ask for your personal account now](#) from the [Home](#) page.

Once you have login and password use the [Access Online](#) tab and follow the instruction provided by the **Login and password** section from the *How to start a test* Chapter of this manual.

Standards and Compatibilities

The tests are produced using the commercially available software package **QuestionMark Perception** (<http://www.questionmark.com>).

Several types of questions are available: *multiple choice*, *multiple response*, *numeric*, *selection*, *text*, *graphical 'hot-spot'*, and *problem solving*. The software being used will also allow for detailed analyses of the responses to questions.

Attention!

- Best compatibility with Internet Explorer 4.5 or higher;
- In order to display the non-Latin alphabet (Cyrillic, Eastern European, Baltic and Greek) correctly, you need to set up an Internet browser allowing the use of UTF Font encoding;
- In order to display the interactive tools of the test (hot-spot, calculator) correctly, and the question-by-question delivery mode (check the compatibility table), you need to have the Virtual Java Machine implemented.

Continuous efforts are also made to keep the compatibility table updated, test different computer environments and to report related information online when identified.

No computing skills are required for the test, apart from being able to use the mouse to point and click, or the keyboard to type in single word or numeric answers. The tests are designed to evaluate the ability of recalling and understanding facts, applying knowledge, evaluating and synthesising of information.

Environnement Compatibility - Windows Internet Explorer

http://www.cpe.fr/ectn-assoc/echentest/xsrcv/compatibility.htm

Environnement Compatibility

European Chemistry Thematic Network Association - The European Chemistry Test Official Website

Compatibility

Access online Available Demo Compatibility Committee Testing Centres

We are currently checking the compatibility of our tests with different "standard" platforms for optimal delivery

Best compatibility

Internet Explorer version 4.5 or higher
See the optimal "question-by-question" delivery mode

Lowest compatibility

according to the information available in the table below, with standard "list-of-questions" delivery mode.

June 2005: Due to recent changes, Microsoft, decided to not implement anymore the Java Machine with the most recent Windows XP releases - you can download it for free from the website [www.oracle.com](http://www.oracle.com/technetwork/java/javase-downloads-136031.html). The Virtual Java Machine (VJM) is required to run properly the tests and ensure the question-by-question "qxq" screen display, and the correct operation of the multimedia hot-spot and the java calculator.

Mandatory:

- The Virtual Java Machine must be active to run correctly all interactive sections of the tests.
- The Text Encoding used is UTF-8 for a wider languages and characters compatibility.

Browser	Internet Explorer	Netscape	Firefox	Mozilla Firefox	Opera	Wanadoo	iCab	
Win XP Pro			N/A				N/A	
Mac OS.X 3.x						N/A		
Mac OS.X 4.x								

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vgninfo page

Internet 100%

Thematic areas

The Thematic areas available for training are:

- | | |
|--------------------------|--|
| • General Chemistry 1 | Level 1, end of compulsory education |
| • General Chemistry 2 | Level 2, beginning of University studies |
| • Analytical Chemistry 3 | Level 3, University Bachelor Level |
| • Biological Chemistry 3 | Level 3, University Bachelor Level |
| • Inorganic Chemistry 3 | Level 3, University Bachelor Level |
| • Organic Chemistry 3 | Level 3, University Bachelor Level |
| • Physical Chemistry 3 | Level 3, University Bachelor Level |

General Chemistry 1

This test has been designed to evaluate a level of competence in chemistry equivalent to that expected at the end of compulsory education.

Structure: The test consists of 30 questions covering the 10 topics given below, with 10 questions at each of three levels of difficulty (introductory, intermediate, advanced).

- 1. Composition of matter:** Classification of matter (pure substance, mixture) - Solutions (saturated solution) - Separation methods (filtration, extraction, evaporation, distillation).
- 2. Atoms and elements:** Structure of the atomic nucleus (number of protons, electrons and neutrons) - Structure of electron cloud - Periodic Table (principles of placing elements, period, group) - Properties of alkali metals, halogens and noble gases - Atomic weight, Molecular weight, Formula weight - Mole and Avogadro's Number.
- 3. Types of Chemical reaction:** Acids and bases (hydronium and hydroxide ions, pH scale, neutralization, indicators, buffer solutions) - Endothermic and exothermic reactions - Chemical equations - Factors which affect reaction rates (T, nature of reactants, surface area, concentration, catalyst).
- 4. Chemical bonding:** Energy and stability - Role of valence electrons - Ionic bond (structure and formulas of ionic compounds) - Covalent bond (molecules or giant structures) - Water as a solvent (polarity of the water molecule) - Metallic bond - Intermolecular forces
- 5. Solid, liquid and gas state:** Simple models of the solid and gaseous states.
- 6. Chemistry in our environment:** Atmosphere (structure, importance of oxygen, ozone and carbon dioxide, greenhouse effect, pollution) - Water (water cycle, specific properties, diffusion, osmosis) - Acids and bases (acidic and basic oxides, acid rain) - Basic industry (HCl, H₂SO₄, HNO₃, NaOH, different methods to produce salts, water of hydration, Nitrogen cycle, fertilisers).
- 7. Organic chemistry:** Oil and the oil industry - Carbon, hydrocarbons, multiple bonds, alcohols, carboxylic acids, esters, carbohydrates, proteins, fats - Addition polymers – Photosynthesis.
- 8. Metals:** Production from ore, properties (Periodic Table, metallic bonding, reactivity with oxygen and acids)
- 9. Electrochemistry:** Activity series, corrosion - electrolysis
- 10. Life spans of different products (some examples):** Waste, paper, plastics, paints, cosmetics, textiles, detergents, glass, construction materials and water

General Chemistry 2

This test has been designed to evaluate a level of competence in Chemistry equivalent to that of a person beginning university education.

Structure: The test consists of 30 questions covering the 10 topics given below, with 10 questions at each of three levels of difficulty (introductory, intermediate, advanced).

- 1. Atomic structure:** Atomic model, isotopes - Electron cloud (orbitals s, p, d, f) - Periodic Table - Periodic properties of elements - Amount of substance, Mole, Avogadro's constant.
- 2. Chemical reaction:** Chemical equation, balancing equations - Reaction series, chemical calculations (masses, volumes, mole concentrations) - Transition complex, activation energy - Determination of rate of chemical reaction - Factors affecting reaction rates - Catalysis (homogeneous, heterogeneous, enzymatic catalysis).
- 3. Chemical bonding:** Electronegativity - Ionic, covalent and metallic bonds - Dipole-dipole bond, hydrogen bond - Dispersion forces (van der Waals bond).
- 4. States of matter:** Changes of states - Models of solid and gas states - Laws of gases - Solutions – Concentration.
- 5. Acids and bases:** Protolysis - Conjugate acids and bases - Acidity and basicity - pH of aqueous solutions, Ionic product of water K_w - Acid-base equilibrium, use of dissociation constants K_a and K_b to calculate pH for weak acids and bases - Titration curve - Buffer solutions.
- 6. Energy:** Endothermic and exothermic reactions - Enthalpy - Energy of formation - Hess's law.
- 7. Redox reactions:** Oxidation and reduction - Oxidation number - Coefficients in redox equations - Activity series of metals - Electrode potentials - Electrolysis (Faraday's law).
- 8. Chemistry of elements:** Characteristic properties of elements and compounds in groups I...VIII - Trends in properties of elements and compounds in main groups and in period 3 - Transition metals (existence of several oxidation states, compounds).
- 9. Chemical equilibrium:** Dynamic nature of equilibrium - Homogeneous equilibrium (Le Chatelier's principle, changes of pressure, temperature and concentration) - Equilibrium constant.
- 10. Organic chemistry:** Homologous series - Functional groups and corresponding compounds - IUPAC Nomenclature- Structural and stereoisomers - Organic reactions (substitution, addition, elimination, polymerisation : addition and condensation, reactions of functional groups)

Analytical Chemistry 3

This test has been designed to evaluate a level of competence in analytical chemistry equivalent to that of a person who has completed the core chemistry syllabus at University.

Structure: The test consists of 30 questions covering the six topics given below. It starts with 15 questions at the introductory level (topics 1-5), followed by 10 questions at the intermediate level (topics 1-6) and finally five questions at the advanced level (topics 2-6) of difficulty.

1. Classical Analysis: Qualitative and Quantitative, including questions on topics of Chemical equilibrium relevant to Analytical Chemistry
2. Data Analysis - Chemometrics
3. Electrochemical Methods of Analysis
4. Spectrochemical Methods of Analysis
5. Separations - Chromatographic Methods of Analysis
6. Miscellaneous Methods of Analysis: advanced instrumental methods

Biological Chemistry 3

The test has been designed to evaluate a level of competence in biological chemistry equivalent to that of a person who has completed the core chemistry syllabus at University.

Structure: The test consists of 30 questions covering the topics given below. It starts with 10 questions at the introductory level, followed by 10 questions at the intermediate level and finally 10 questions at the advanced level of difficulty.

1. **Biomolecules 1:** macromolecules (proteins, nucleic acids, lipids, carbohydrates)
2. **Biomolecules 2:** small molecules (building blocks, vitamins, hormones, prostaglandins, gases, alkaloids, antibiotics, terpenoids, flavonoids)
3. **Reactions of biomolecules:** mechanisms and functional groups, redox reactions, acid-bases reactions, Bioelements (speciation, metal/non-metal, trace and bulk elements)
4. **Biological environment:** water, pH
5. **Chemical and physical factors:** controlling bioelements and biomolecules: selection, separation, recognition, chirality, solubility, membranes
6. **Biocatalysis:** enzymes
7. **Bioenergetics:** photosynthesis, citric acid cycle, fatty acid oxidations
8. **Metabolism 1:** anabolism (biosynthesis)
9. **Metabolism 2:** catabolism (biodegradation)
10. **Bioanalysis:** spectroscopy (n.m.r., fluorescence etc.) , diffraction, mass spectrometry, biomarkers, labelling

Inorganic Chemistry

The test has been designed to evaluate a level of competence in inorganic chemistry equivalent to that of a person who has completed the core chemistry syllabus at University.

Structure: The test consists of 30 questions covering the topics given below. It starts with 15 questions at the introductory level, followed by 10 questions at the intermediate level and finally 5 questions at the advanced level of difficulty.

Introductory Level

1. Atomic Structure and Nuclear/Radiochemistry
2. Bonding
3. Symmetry
4. Nomenclature
5. Stereochemistry
6. Main Group Chemistry: H, Groups 1,2,12,13
7. Main Group Chemistry: Groups 14,15
8. Main Group Chemistry: Groups 16,17,18
9. Transition Metal Chemistry
10. Coordination Chemistry 1: oxidation state, coordination number, ligands, chelate effect,
11. Coordination Chemistry 2: stereochemistry, ligand field theory and related effects (color, mag., ..)
12. Lewis Acids and Bases
13. Organometallic Chemistry
14. Chains, Rings, and Cages
15. Bioinorganic Chemistry

Intermediate Level

1. Atomic structure, bonding, symmetry
2. Stereochemistry
3. Main Group Chemistry: H, Groups 1,2,12,13
4. Main Group Chemistry: Groups 13,14
5. Main Group Chemistry: Groups 16,17,18
6. Transition Metal Chemistry
7. Coordination Chemistry 1
8. Coordination Chemistry 2
9. Organometallic Chemistry
10. Rings, Chains, Cages

Advanced Level

1. Atomic Structure and Bonding
2. Coordination Chemistry
3. Bioinorganic Chemistry
4. Main Group Chemistry
5. Transition Metal Chemistry

Organic Chemistry

The test has been designed to evaluate a level of competence in organic chemistry equivalent to that of a person who has completed the core chemistry syllabus at University.

Structure: The test consists of 30 questions covering the topics given below. It starts with 15 questions at the introductory level, followed by 10 questions at the intermediate level and finally 5 questions at the advanced level of difficulty.

Introductory Level

1. Nomenclature
2. Structure and Bonding (including hybridization)
3. Functional Group Recognition; Simple Spectroscopy
4. Basic Stereochemistry
5. Reactive intermediates
6. Safety, solvents
7. Simple Structure Elucidation
8. Addition to Alkenes and Alkynes
9. Substitution and Elimination Reactions
10. Electrophilic Aromatic Substitution of Benzene derivatives and Naphthalene
11. Nucleophilic Additions to Carbonyl Groups (Aldehydes, Ketones, Carboxylic Acid Derivatives)
12. Simple Functional Group Transformations
13. Redox Reactions
14. Acid and Base Strengths
15. Radical Halogenation of Alkanes

Intermediate Level

1. Resonance (mesomerism), Aromaticity
2. Further Stereochemistry (R,S nomenclature)
3. Further Structure Elucidation
4. Cyclo-addition Reactions; Radical Additions to Alkenes ; Stereochemistry of Additions to Alkenes
5. Further Substitution and Elimination Reactions, Stereochemistry of Eliminations
6. Enolate Anion Chemistry, Michael Reaction
7. Simple Syntheses
8. Use of Diazonium Salts
9. Carbocation rearrangements (Wagner-Meerwein, pinacol), Beckmann, Baeyer-Villiger, Hofmann and Curtius rearrangements
10. Polymers

Advanced Level

1. Stereochemistry of Compounds with 2 or more Stereogenic Centres, Cyclic Compounds
2. Advanced Structural Elucidation using more than one type of spectroscopy
3. More Complex Syntheses, use of protecting groups, multistep processes
4. Biomolecules
5. Aromatic Substitution of Heteroaromatics (Nucleophilic and Electrophilic)

Physical Chemistry

This test has been designed to evaluate a level of competence in physical chemistry equivalent to that of a person who has completed the core chemistry syllabus at University.

Structure: The test consists of 20 questions covering the 10 topics given below. It starts with 10 questions at the introductory level, followed by 10 questions at the advanced level of difficulty.

1. State of matter
2. Phase equilibrium
3. Thermodynamics
4. Chemical Equilibrium
5. Kinetics
6. Catalysis
7. Electrochemistry
8. Atomic structure
9. Molecular structure
10. Spectroscopy

Before starting the test

The demonstration test, allowing you to check a real test-like, has to be taken before being admitted to any of the official **EChemTest** chemical tests available.

Time limit: One has 60 minutes to complete the test. A Timer window showing time left will be always available on the screen during the test. You can end the test at any time if you wish. The time used to complete the test is not an element of evaluation even if it is recorded.

Level of difficulty: The difficulty of the test varies with the level of the test and depends on the thematic area chosen (more information in *Section 4 – Thematic Areas*).

Type of questions

Questions can be of different types: *multiple choice*, *multiple response*, *numeric*, *selection*, *text*, *graphical 'hot-spot'*, and *problem solving*. A list of them and a brief explanation follows.

The software being used will also allow for detailed analyses of the responses to questions.

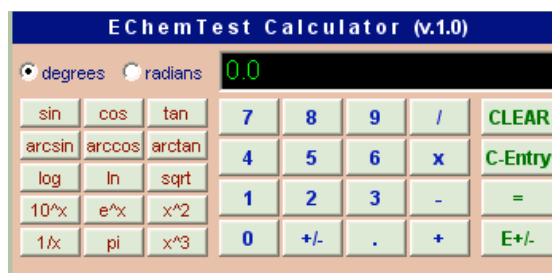
- **Drag-and-Drop:** the participant clicks and drags up to ten images into position. The feedback and score is dependent upon the final position of the images.
- **Fill-in-the-blank:** the participant is presented with a statement where one or more words are missing and completes the missing words. The score can be determined from checking each blank against a list of acceptable words and can checked misspelled words.
- **Hotspot:** the participant clicks on a picture to indicate his/her choice. Depending upon the choice, certain feedback and grades will be assigned. A graphics editor is provided to simplify the specification of the chosen areas.
- **Matching:** two series of statements/words are presented and the participant must match items from one list to those of the other list.
- **Multiple choice:** the participant selects the right choice from up to 4 possible answers. There is no limit to the length of each answer.
- **Multiple response:** the participant selects none, one or more of the up to 4 possible answers.
- **Numeric questions:** the participant is prompted to enter a numeric value, and this may be given one score for an exact answer and different score if the response is within a defined range.
- **Pull-Down List (selection question):** a series of statements is presented and the participant can match these statements with a pull-down list.
- **Ranking (Rank in Order):** a list of choices is presented and the participant ranks them numerically with no duplicate matches allowed.

- **Select-a-blank:** the participant is presented with a statement where a word is missing; words can be selected from a pull-down list to indicate the right answer.
- **True/False:** the participant selects "true" or "false" in response to the question.
- **Word response (text match):** the participant types-in a single word or a few words to indicate the right answer. Right and wrong words or phrases are defined in advance by entering a list of acceptable answers. The grading logic can also allow scoring based on the presence or absence of keywords or key phrases and check for misspellings.
- **Yes/No:** the participant selects "Yes" or "No" in response to the question.

The calculator

This is a multimedia calculator you will be allowed to use during your test. It will appear automatically on the question whenever required.

Click on the appropriate button to run a calculation, then type the result displayed in the numerical box of the question, or use the keyboard to copy (^C) and paste (^V) in the numerical box.



How to start a test

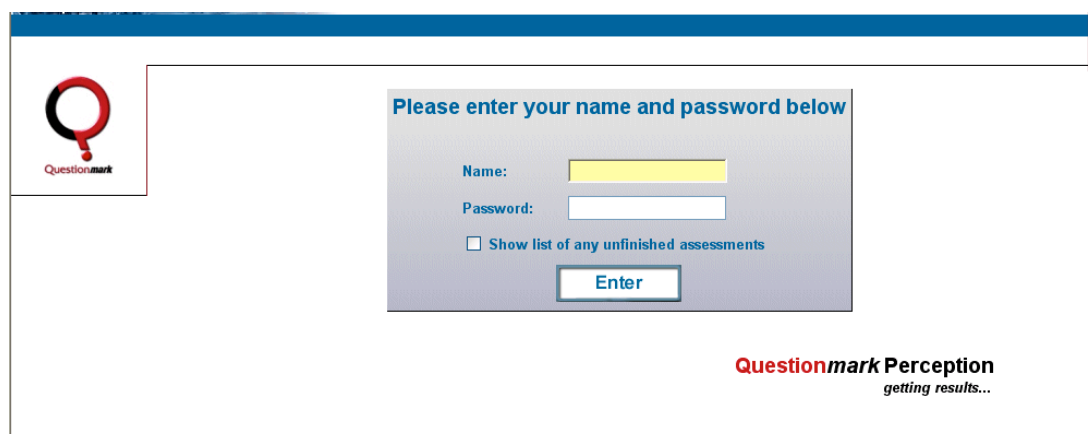
There are several pages on the website from where you can access the free Demo online.
The main one is on the entry page: www.echemtest.net through the tab “Available Demo”

Login and password

First of all you need to get a Login and a Password to enter the Free Test online.
For these you have to request an account. To do this, contact us through the **EChemTest** website (www.echemtest.net) and click “ask for your personal account now” on the Home Page.

Once you have your login and password, you should access the free Demo online from the link on the same page in order to familiarise yourself with it.

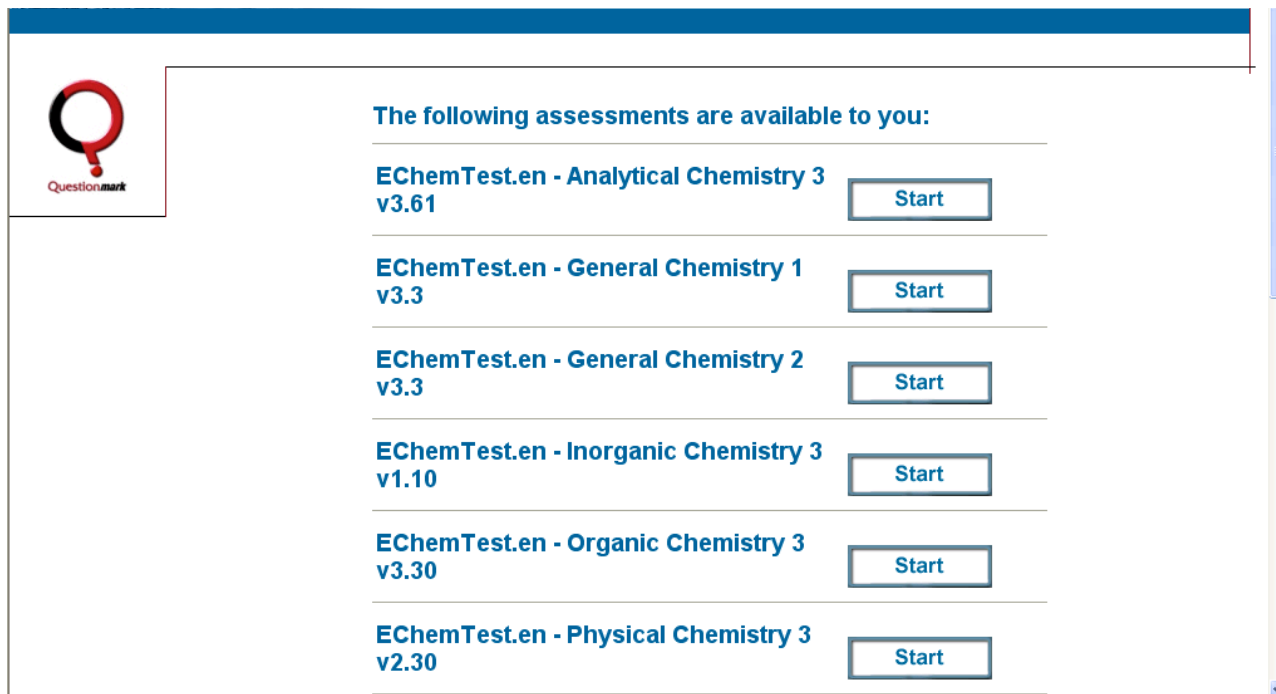
This is what you should see:



The screenshot shows the login interface of the Questionmark Perception software. On the left is the Questionmark logo. The main area contains a login box with the title "Please enter your name and password below". Inside the box, there are two input fields: "Name:" (highlighted in yellow) and "Password:". Below these fields is a checkbox labeled "Show list of any unfinished assessments" and an "Enter" button. At the bottom right of the page, the text "Questionmark Perception" is displayed above the tagline "getting results..."

After Login

Once logged in, you will find a list of available Demos. Choose the one you want to run by clicking on the “Start” button.



The following assessments are available to you:

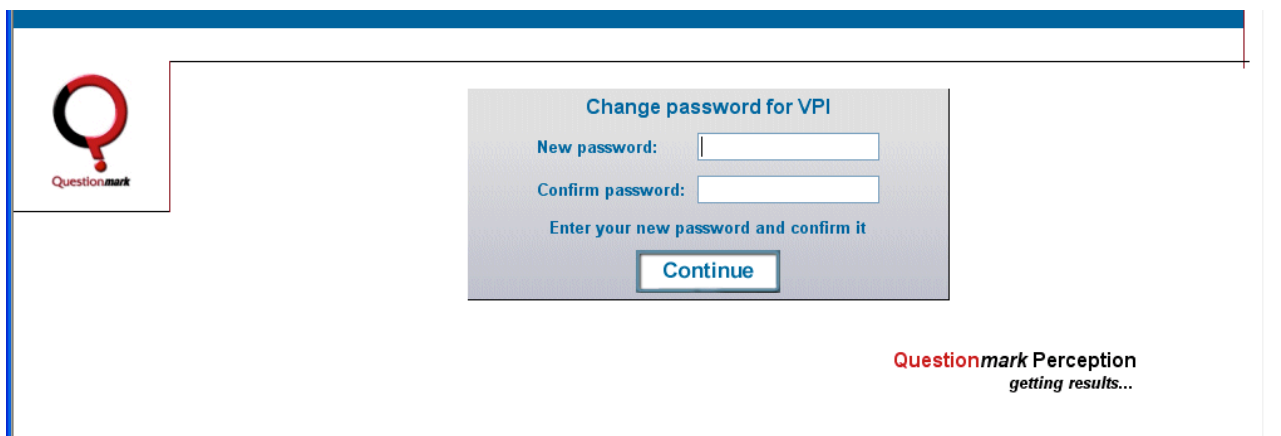
EChemTest.en - Analytical Chemistry 3 v3.61	Start
EChemTest.en - General Chemistry 1 v3.3	Start
EChemTest.en - General Chemistry 2 v3.3	Start
EChemTest.en - Inorganic Chemistry 3 v1.10	Start
EChemTest.en - Organic Chemistry 3 v3.30	Start
EChemTest.en - Physical Chemistry 3 v2.30	Start

The list of available tests is updated regularly.

From the same page you can change your personal password, if you wish, or see your reports on past assessments, by clicking on the appropriate buttons at the end of the list:

See reports on past assessments	Reports
Change your password	Password

To change your password, click on the button **Password**. You will be asked to insert the new password and then to confirm it.



Change password for VPI

New password:

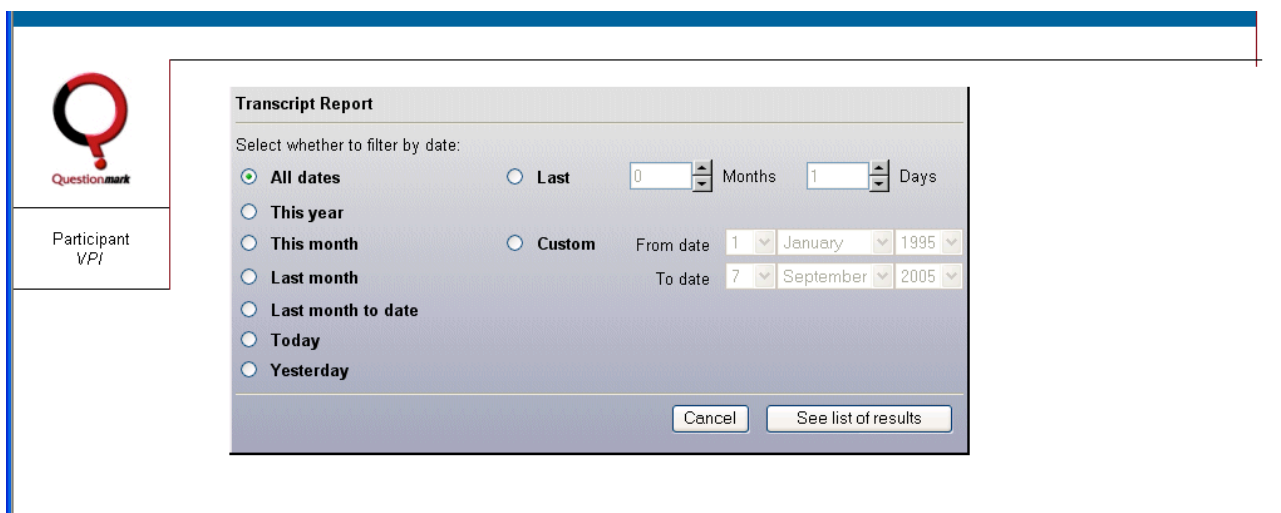
Confirm password:

Enter your new password and confirm it

Continue

Questionmark Perception
getting results...

To access your reports on past assessments, click on the button **Reports** and select the one you would like to see. This is most easily done by choosing them by date ('filter by date').



Transcript Report

Select whether to filter by date:

☒ **All dates** ☐ **Last** Months Days

☐ **This year** ☐ **Custom** From date

☐ **This month** To date

☐ **Last month**

☐ **Last month to date**

☐ **Today**

☐ **Yesterday**

Cancel **See list of results**

Above some illustrative examples are shown.

For each Report you find information on the Assessment attempted, how the Test was terminated, its date and time, total score, maximum score, percentage score, time taken and the final result.

Whenever you like, you can access the results of the tests attempted by clicking on the first button of each row, corresponding to the column **Coaching report**.

On the same page you will find also information on the test itself (Timing, scoring, etc).

Soon after this first table, you will be able to go through your test question by question, giving you information regarding each of them, possible outcomes, outcome(s) chosen by the candidate, answer given, score assigned for each single question, maximum score that could be obtained for each question, and feedback for each question when provided.

Welcome and go

The welcome page

In this page you will find the information necessary to start and carry out the test.

EChemTest.en Analytical Chemistry 3 v3.70
Copyright ECTN Association / EChemTest.net 2005

Welcome to the European Chemistry Test
Analytical Chemistry 3
Training Test in English

Database 2004 - v3.70

Information / Instruction:

- Each question is accessible with the navigation bar on the right handside of the screen. You can move forward and backward in this question by question delivery display mode; you can also use the «**Previous**» / «**Next**» buttons.
- The «**Flag**» button is a reminder-like option to tag a question in order to review it later on.
- At the end of the test, you will be requested to fill the comments/suggestions box before proceeding the questions.
- Then after proceeding, the score page will be displayed, before reviewing all of your answers, but you won't be able to change any of them.
- You can submit your answers at anytime by clicking on the «**Proceed**» button, or exit/abort at anytime you wish without saving your answers by clicking on the «**Quit**» button.
- In numerical answers, the decimal separator is «.»

Good luck.

Navigation bar (1-13): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13

Buttons: Next, Quit, Proceed

Timer: 59:52

The first page

Below, for illustrative purposes, the English version of the first page of the Analytical Chemistry 3 Test is shown.

EChemTest.en Analytical Chemistry 3 v3.70
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1 of 31

Which one of the titration curves shown in the figure better describes the expected titration curve obtained when 50.0 mL of a solution 0.10 M in HCl and 0.20 M in acetic acid is titrated with a 1.0 M NaOH solution?

☐ Curve A
☐ Curve B
☐ Curve C
☐ Curve D

Navigation bar: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, Previous, Next, Flag, Quit, Proceed, Timer: 55:23

We now look more carefully at some technical aspects.

If the question (text, graphics, tables, options) is longer than the available screen space on display, a scrolling bar will appear automatically at the right hand side of the question, on the left of the navigation bar.

Tools and buttons

The navigation bar

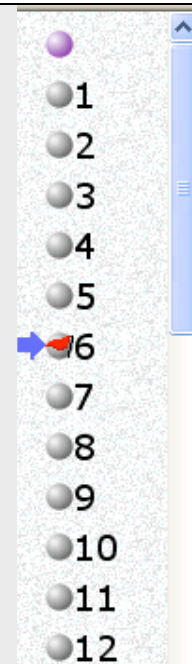
Using the scrolling bar you can move throughout the test as many time as you want, moving to one question to another without answering, if you prefer.

The question currently displayed is indicated by a blue arrow on the left hand side of the scrolling bar.

When the question is answered or validated, the bullet becomes blue.

A red flag on the blue bullet corresponding to one question indicates that you have selected that question in order to remember to have a look at it again later. You set the flag by pressing the button “Flag” at the bottom of the scrolling bar. You can remove by pressing the button “Unflag”.

At any time you can change your mind, come back to a question, or a flagged question, and change your answer.



You also can use the following “Previous/Next” buttons to navigate throughout the test.

Click it to go to the PREVIOUS question	Previous
Click it if you want to see the NEXT question	Next
Click it to FLAG the question	Flag
Click it to UNFLAG the question	Unflag
Click it to QUIT the test	Quit
Click it to PROCEED in submitting the test	Proceed
Click it to go back to the home page of your account	Home

The time limit of each test is set to 60 minutes and is indicated by a Timer window at the bottom right of the page. A warning message will pop up automatically to indicate that there is only five minutes left before the end.

Timer

35:13

How to quit the test

At any time you can decide to finish your assessment without answering the rest of the questions by pressing the button:

Quit

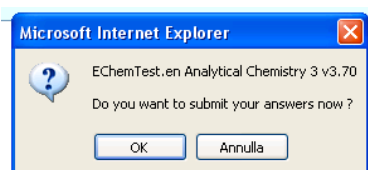
A pop-up window will ask you again if you want to confirm your choice:

The screenshot shows the EChemTest interface. At the top, it says "EChemTest.en Analytical Chemistry 3 v3.70" and "Copyright ECTN Association / EChemTest.net 2005". The question number is "23 of 31". The question text is: "The gas chromatogram A, obtained with a mixture of methanol, ethanol and n-propanol using a capillary glass column, gave highly-tailed peaks. What action might be the best to convert the chromatogram to a B type?" Below the question is a chromatogram labeled "A" showing three broad, overlapping peaks. To the right of the chromatogram is a list of four options, each with a radio button: "Use a different type of detector.", "Use a different carrier gas.", "Increase the column temperature.", and "Use a longer glass capillary column." A pop-up window titled "Microsoft Internet Explorer" is overlaid on the options, asking "Are you sure you wish to finish the assessment without answering the rest of the questions?" with "OK" and "Annulla" buttons. On the right side of the interface, there is a vertical list of question numbers from 18 to 31, with question 23 highlighted. Below this list are buttons for "Previous", "Next", "Flag", "Quit", and "Proceed". At the bottom right, a "Timer:" shows "55:58".

When you reach the end of the test, question 31 (or 21 for the physical chemistry 3), the comment page (see **The comment page** section from this manual) will appear and will allow you to freely leave any comment or suggestion related to the test done.

If you press "Proceed" or "Quit", a pop-up window will again ask you if you want to confirm your choice.

If you then "OK", your test result will be displayed.



The comment page

When you reach the end of the test, the comment page will appear and will allow you to freely leave any comment or suggestion related to the test done.

The screenshot shows the 'EChemTest.en Analytical Chemistry 3 v3.70' interface. The top header is dark blue with the title and copyright information. The main content area is light blue and contains the text 'Your comments and suggestions are welcome. Thank you very much.' followed by a large empty text box for comments. Below the text box is the ECTN logo and the website address 'www.ectn-assoc.org'. On the right side, there is a vertical list of question numbers from 18 to 31, with question 31 selected. Below the list are buttons for 'Previous', 'Flag', 'Quit', and 'Proceed', and a 'Timer' showing 51:58.

The Result page

In this page you will find your Total Score, either in points or as a percentage.

E.g. if the full marked test has a maximum of 400 points, and your correct answer score is only 41 , You have obtained a 10% score.

The screenshot shows the 'EChemTest.en Analytical Chemistry 3 v3.70 completed' interface. The top header is dark blue with the title. The main content area is light blue and displays the text 'Total score: 16 out of 400, 4%' in red. On the right side, there is a vertical list of question numbers from 1 to 16, with question 10 highlighted in red. Below the list are buttons for 'Next' and 'Home'.

The scroll bar gives you some more information about how you have done.

<p>Different coloured balls give you information :</p> <p>Green Bullet: The answer given is correct</p> <p>Yellow Bullet: The answer given is only partially correct</p> <p>Red Bullet: The answer given is wrong</p> <p>Grey Bullet: The question hasn't been answered</p>	<p>Assessment</p> <p>1 </p> <p>2 </p> <p>3 </p> <p>4 </p> <p>5 </p> <p>6 </p> <p>7 </p> <p>8 </p> <p>9 </p> <p>10 </p> <p>11 </p> <p>12 </p>
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If you press the button “Next” you will get the complete feedback of your test, when available. If you press “Home” you will directly go back to the Home page of your account.

The feedback page

Here are a few examples of feedback you might get.

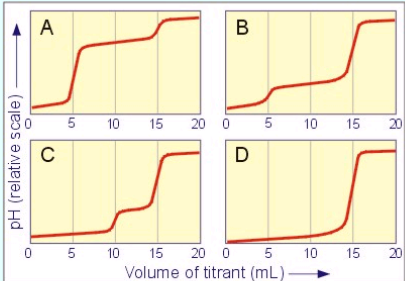
At the end of each question you will find the scientific explanation for the correct answer.

Below you can see some examples of a correct answer,

EChemTest.en Analytical Chemistry 3 v3.70 completed

1 of 31

Which one of the titration curves shown in the figure better describes the expected titration curve obtained when 50.0 mL of a solution 0.10 M in HCl and 0.20 M in acetic acid is titrated with a 1.0 M NaOH solution?



☐ Curve A

☒ Curve B

☐ Curve C

☐ Curve D

8 out of 8

HCl is neutralized first as a much stronger acid than acetic acid. The length of the pH break at the first equivalence point is relatively short because the solution is still acidic due to acetic acid. At the second equivalent point a larger pH break is expected due to the high alkalinity resulting by the first excess of NaOH. That leaves curves B and C as candidates for the right answer. In curve B the ratio of the equivalents of NaOH consumed by the two acids is in accord with the ratio of the equivalents of the two acids in the solution.

a partially correct answer,

EChemTest.en Analytical Chemistry 3 v3.70 completed

4 of 31

The dot-plots A to D, shown in the figure, represent the experimental values (e.g. analytical results) obtained by replicate measurements. Associate the accuracy and the precision of the applied method with each dot-plot.

Low accuracy - high precision.

Low accuracy - low precision.

High accuracy - low precision.

High accuracy - high precision.

4 out of 8

High precision implies more reproducible measurements (less data spread). High accuracy implies a mean value closer to the true mean.

a question not answered,

EChemTest.en Analytical Chemistry 3 v3.70 completed

8 of 31

The most common electroanalytical determination of the fluoride anion (F^-) is based on which one of the following:

- ☐ the amperometric titration of fluoride with a standard $Pb(II)$ solution.
- ☐ the voltammetric oxidation of fluoride anion.
- ☐ the use of an ion-selective electrode with a LaF_3 - crystal membrane.
- ☐ the use of an ion-selective electrode with a membrane based on a multi-crystalline mixture of various insoluble fluoride salts.

Question not answered

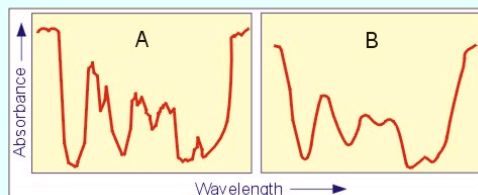
The most common, easier and most sensitive method for the determination of fluoride anion in samples makes use of the fluoride ion-selective electrode, which uses as selective membrane, a single crystal of the sparingly soluble LaF_3 .

and a wrong answer.

EChemTest.en Analytical Chemistry 3 v3.70 completed

10 of 31

The real (theoretical) spectrum of an absorbing solution is shown in figure A. The spectrum obtained experimentally is shown in figure B. In order to obtain a spectrum more similar to the real one the following experimental conditions must be applied:



- ☒ Use a cell of better quality glass (e.g. quartz).
- ☐ Increase the intensity of the light source.
- ☐ Increase the voltage applied to the photomultiplier tube.
- ☐ Use a less absorbing solvent.
- ☐ Decrease the exit slit width of the monochromator.

0 out of 8

Decreasing the width of the exit slit of the monochromator (increasing thus the monochromaticity of the light beam) is the only way to increase the resolution of the system and reveal the fine structure of a spectrum. (Beer's Law requires monochromatic light).

Not all the tests are provided with a feedback for all questions yet.

FAQ: Frequently Asked Questions

How can I get up to date information regarding the ECTN and EChemTest?

You can always check the **EChemTest** web site, www.echemtest.net, and register yourself for the ECTN NewsLetter, simply by sending an email to mimero@echemtest.net. ECTN publishes a NewsLetter five times a year sent by e-mail to all members and registered readers and is concerned with **ECTN Association** (www.ectn-assoc.org) and **European Chemistry Thematic Network** (www.ectn.net) information. The newsletter contains also information related to the Eurobachelor[®] (www.eurobachelor.net), to chemistry education in the European Higher Education and the extended European area. The NewsLetter is widely disseminated throughout Europe, and abroad. Chemical Societies also receive the newsletter. Information contained in the ECTN NewsLetter can be copied and disseminated.

How can I get up to date information regarding new EChemTest releases?

You can always check the **EChemTest** web site, www.echemtest.net, for recent updates and to register for the ECTN NewsLetter as well, by sending an email to mimero@echemtest.net. All EChemTest registered members, having a regular individual account, will automatically receive via our broadcasting services, updates related to the tests they already registered (corrections, updates, new versions, new translations).

Is it necessary to have high level computer skills to do the tests?

It is not necessary to have high level computer skills to pass the test. It is recommended, before taking any of the **EChemTest** chemical tests, to carry out the «Training Test» since it allows you to check the various types of questions and how to answer them.

How can I have access to the Demo/Training test?

First of all you need to get a Login and a Password to enter the Free Test on line. In order to do this, you have to ask for your account by contacting us after connecting to the website of the EchemTest (www.echemtest.net) and clicking the button on the right hand side “Contact us”.

See also the downloadable “Account Registration Form” available online.

Once you have your login and password, you can access the free Demo on line from the same page. For more details see *Section 6 – How to start a test* in this booklet.

How many training test session am I allowed to run?

You can run each Training test as many times you like, on an individual basis. Group or classroom sessions are not allowed using your private account. Private accounts cannot be passed to anybody else. Breaking the rule may cause the closure of the account followed possibly by legal action.

Which are the thematic areas available for training?

The Thematic areas available for training are the topics and levels implemented in English plus those available in your mother tongue.

For more detailed information see the *Section 4 - Thematic Areas* of this booklet.

Can I have access to the tests in more than one language?

Subject to availability, you can have access to the tests in your mother tongue, or in any other currently available language (see *Section 2 – The EChemTest website* of this booklet).

What happens if you quit a Training Test part way through?

In this case, the evaluation will be concerned with what you have done till the moment of quitting. You will be given your score, and you will be able to look at what you have done by looking in the Section Report on past assessment available from your personal Home page for the test (see *Section 7- After login* of this booklet).

What are testing centres?

Testing centres approved by the ECTN Association provide a computer service maintained and prepared to host a session, a high speed network and broadband, and a browser with the Virtual Java Machine implemented (see *Section 3 – Standards and Compatibilities, or Section 14 – The IT expert knowledge required* of this booklet)

How can I book a certification session?

ECTNA member institutions have free access to the full service. You should contact the official representative of that institution and then request your personal account (see the downloadable “Account Registration Form”).

If you are not a staff member or a student of an ECTNA institution, you will have to request your personal account through a special procedure communicated by the Committee coordinator.

Is the time I use for the test considered in the final evaluation?

The time used to complete the test is not considered for the evaluation though it is recorded for statistical purpose only.

What happens if the candidate interrupts a Certification Test half way?

The candidate will be evaluated for what has been done till the submission of the answers.

What happens if the connection is interrupted during a Certification Test because of technical reasons independent of the candidate?

Although such an event is highly unlikely, if it happens it will not be visible during the session since the entire resource is loaded onto the end-user computer once the process is launched. At the end of the session, when submitting the answers, the connection will be reset in order to validate the score and store the data.

It has never happened that in case of major trouble the connection was not properly reset.

How are the questions chosen with respect to the different levels of difficulties?

Questions are chosen randomly within the database provided for each thematic areas. For General Chemistry Level 1 and 2, the test consists of 30 questions covering the 10 topics given, with 10 questions at each 3 grades of difficulty (introductory, intermediate, advanced). For Analytical Chemistry 3, Inorganic Chemistry 3, Organic Chemistry 3, the test consists of 30 questions covering different topics. It starts with 15 questions at the introductory level, followed by 10 questions at the intermediate level and finally 5 questions at the advanced level of difficulty. For Physical Chemistry, the test consists of 20 questions covering the 10 topics given. It starts with 10 questions at the introductory level, followed by 10 questions at the advanced level of difficulty. For further details see *Section 4 - Thematic Areas* of this booklet.

Is one allowed to use during the test any other facilities rather than the ones provided by the tests themselves?

The candidate is only allowed to only use the facilities provided by the test itself. In a future development, the browser will be completely secured in order to avoid any possible navigation on the computer, or any connection to websites online during the session.

Is it possible to see an example of each different type of question?

In *Section 5* of this booklet - *Before starting the test*, there is a list with an explanation of the different type of question. Examples of the different types are given in the Training Test.

Is the feedback available for each question ?

Informative feedbacks are available only for some demo tests.

Is it possible to have a report on past assessments?

There is an automatic report for each assessment performed. For further detail, see *Section 7- After login* of this booklet.

Does it affect my final score if I do not answer one question?

There is no negative mark. Unanswered questions have a null score.

How much does it affect my final score if I answer wrongly?

There is no negative mark. Wrong answer have a null score.

How is the score evaluated for the multiple response type of question?

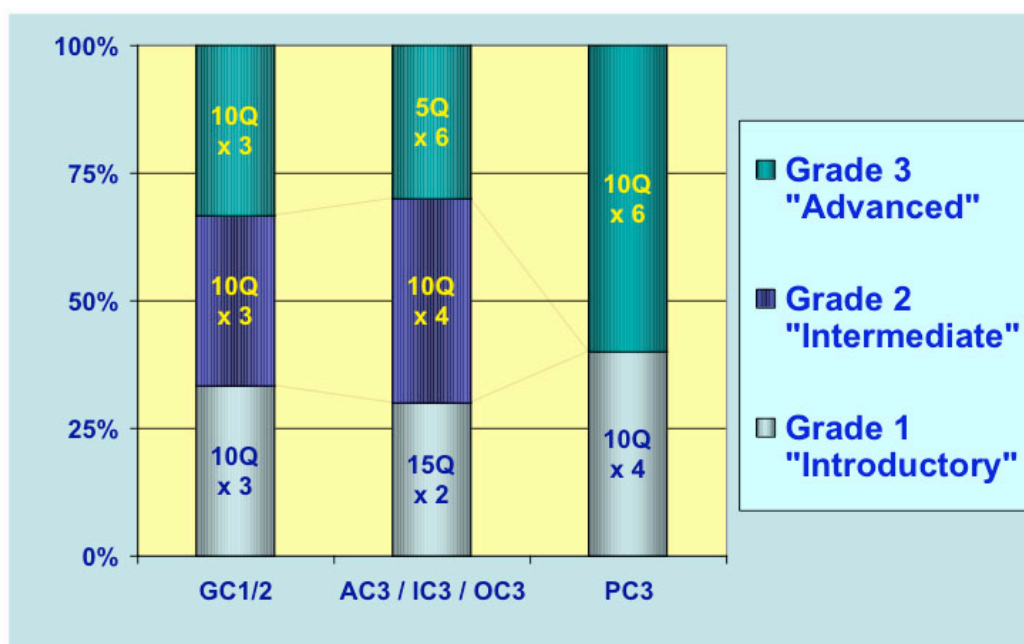
The total score of the question is divided by the number of correct answers.

How can I proceed if I need the calculator and it is not provided by the question?

The use of facilities not provided by the test is not allowed.

How can I know, during the test, which is the level of each question and which are the points assigned per question in the different grades of difficulty?

Questions are chosen randomly within the database provided for each thematic area though the difficulty increases on proceeding through the test. The number of questions at the same grade of difficulty depends on the thematic area chosen. The graphic below shows the differences between the different thematic areas.



General Chemistry 1 and 2: 3 points each question of each grade.

Analytical Chemistry 3, Inorganic Chemistry 3, Organic Chemistry 3:

2 points / questions assigned at introductory grade

4 points / questions assigned at intermediate grade

6 points / questions assigned at advanced grade

Physical Chemistry:

4 points / questions assigned at intermediate grade

6 points / questions assigned at advanced grade

For further details see *Section 4 - Thematic Areas* of this booklet.

How many questions are there for each test?

The tests are composed of 30 questions, except for Physical Chemistry which has 20 questions.

For further details see *Section 4 - Thematic Areas* of this booklet.

Is the certification test always the same?

Each time you run a real or certification test, the set of questions is different and the list of options in the question is shuffled.

For how long is it possible to keep the record of the different types of sessions?

Report(s) is (are) available directly to the candidate, only during the test session or during the scheduled sessions. Otherwise, all records are stored and backed-up. Only official certification data will be stored for 10 years.

What are the legal conditions concerning the use of the private data by the candidate such as statistical purpose, official certificate issues ...?

There is a legal requirement in some EU countries for the provider of an academic degree to store all data for 10 years, after that time, only the copy of the certificate released is required. But this is our own regulation.

Of course, ECTN and ECTNA require that none of the data, names, information, as a full list or partial list, can be used for commercial purpose, nor sold, shared, or given to third parties, whether this party is an academic institution or a private body different from the candidate himself. Data will be used for statistical analysis and correlations only.

IT Expert: knowledge required within Test Centres

The compatibility table

(See the section **Standards and Compatibilities** from this manual)

Environnement Compatibilité - Windows Internet Explorer

http://www.cpe.fr/ectn-assoc/echentest/xsrcv/compatibility.htm

Environnement Compatibilité

European Chemistry Thematic Network Association - The European Chemistry Test Official Website

Compatibility

Access online Available Demo Compatibility Committee Testing Centres

Delivery Mode:

- Standard Delivery "List":**
browsers correctly rendering HTML as defined by the W3C should be capable.
- Question by Question Delivery:**
only Internet Explorer / Windows is able to display this format correctly.

Mandatory:

- The Virtual Java Machine must be active to run correctly all interactive sections of the tests (navigation buttons, java calculator, Hot-Spot and Drag&Drop questions)
- The Text Encoding used is UTF-8 for a wider languages and characters compatibility.

Browsers	Internet Explorer	Firefox	Mozilla Firefox	Safari	Netscape > 4.x	Opera
Win XP Pro	> 4.x All	List	List	N/A	List	limited
Mac OS.X	> 5.x Standard > 5.16 QxQ			List	List	limited

XITI Analysis - % of User's Navigators - February 2007

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vgninfopage

The browser version

Perception participants use browsers to take assessments.

Perception administrators use browsers to gain access to the administrative tool *Enterprise Manager*.

The importance of the browser in the successful use of *Perception* is sometimes overlooked. This article gives clear guidance on the minimum requirements that a participant or administrator need to possess to use *Perception*.

Perception has been extensively tested with the commonly used versions of the two market leading browsers *Internet Explorer* and *Netscape Navigator*. The compatibility of these two browsers with *Perception* is given below in the table together with information on the other popular browser, **Opera 5**.

Perception is supported for use with Internet Explorer version 4 and higher and Netscape Navigator version 4 and higher. Earlier versions of these browsers are not supported.

Browser compatibility with Perception

Standard delivery

As long as a browser can correctly render HTML (as defined by [W3C](#)) then it should be able to deliver a simple *Perception* assessment.

Question by question delivery

This form of assessment is created by client-side JavaScript that works only in IE 4 and higher. When the others browsers listed below present a question by question delivery assessment it will render as if it were being delivered by standard delivery.

Hotspot/drag and drop questions

These question types are created by Java applets. Your browser must be capable of running Java applets and this capability must be enabled.

Although Opera 5 has this ability, it was found that after the Java applet had been given the focus (by a participant accessing the question) it was no longer possible to pass it back to the rest of the controls on the page (and therefore impossible to continue with the assessment).

MathML questions

These question types are created by Java applets. The browser must be capable of running Java applets and this capability must be enabled.

Enterprise Manager

Use of *Enterprise Manager* requires a browser that supports client-side cookies and has that feature enabled. *Enterprise Manager* uses DHTML to create multi-tabbed screens which may not render correctly in **Opera 5**.

Browser comparison chart

Browser compatibility with Perception							
Perception feature	IE 4	IE 5	IE 6	IE 5 (Mac)	Navigator 4	Navigator 6	Opera 5
Standard assessment delivery	✓	✓	✓	✓	✓	✓	✓
Question by question assessment delivery	✓	✓	✓	✗	✗	✗	✗
Hotspot/drag and drop question types	✓	✓	✓	✗	✓	✓	✗
MathML question type	✓	✓	✓	✓	✓	✓	✓
Use of <i>Enterprise Manager</i>	✓	✓	✓	✓	✓	✓	✗

Questionmark Secure

Additional security can be obtained using *Questionmark Secure*. *Questionmark Secure* acts as a browser that provides a secure environment in which it is possible to deliver valuable contents and assessments such as tests and exams. Because most browsers are designed to be as open and as flexible as possible, when delivering online assessments far more security is required than most browsers can provide.

Questionmark Secure enables high stakes testing to be performed from a computer lab or training room without any special configurations. Simply install *Questionmark Secure* on your PC and start taking high-stakes tests in confidence. *Questionmark Secure* is easy to install and runs on a Windows PC with Internet Explorer 5 or greater installed.

Questionmark Secure will only work with *Perception Server* Version 3.4.3 or higher. If you are using an earlier version of *Perception Server* you will need to upgrade.

You can try out *Questionmark Secure* on your computer by installing *Questionmark Secure* and taking an example assessment. The address is:

<http://www.questionmark.com/secure>

The java machine

The installation of JVM is a pre-requisite to the running the software. It is possible to download JVM from: <http://java-virtual-machine.net/download.html>

Ask your IT expert or Network administrator to install it or provide the rights to use it on the end-user PCs, or the networked PCs.

Band Width

The main use of bandwidth will be made by the sending of the questions to the participant. The size of each block will typically fall in the 25Kb to 100Kb range, depending on the number and length of questions, as well as on which template is used in the question. Return of answers by participants to the server will take a much smaller bandwidth (about 10% of the question block size).

Firewall specification

The EchemTest server is provided of 2 firewalls, the main one depending on the University net for external accesses, the second one for internal accesses, the ones from the University of Perugia itself.

Virus free

The EChemTest server is provided with an antivirus which is automatically updated by a centralized service at the University of Perugia based on Sophos products.

It is also provided with a real time protection against all those programmes, such as viruses, which can not be usually recognised, such as spyware or dialer.

Acknowledgments

This booklet is funded by the European Commission is a guide for the end user, and for the IT service staff of the Testing Centres.

The booklet is the result of the collaboration of more than 100 chemistry departments from over 30 countries. It is based on the definition of the "Core Chemistry" and on the database created therefrom, and developed and translated by the ECTN (European Chemistry Thematic Network).

We thank all the people who spent their time to create, write, check, and advise on the EChemTest. Thanks are also due to those who run the pre-testing.